

WHAT IS CLAIMED IS:

1. A coil spring comprising:
 - a plurality of primary wire coils; and;
 - 5 a plurality of secondary wire coils, the primary and secondary coils being contiguous and differentiated from one another by a dimensional size in order to provide variable force and variable deflection.
- 10 2. The coil spring according to claim 1 wherein the secondary coils have a smaller diameter than a diameter of the primary coils.
- 15 3. The coil spring according to claim 2 wherein the primary and secondary coils are concentric.
4. The coil spring according to claim 2 wherein the primary and secondary coils are eccentric.
- 20 5. The coil spring according to claim 1 wherein the primary and secondary coils are elliptic.
6. The coil spring according to claim 1 wherein the primary and secondary coils are round.
- 25 7. The coil spring according to claim 1 wherein the primary coils are canted and secondary coils are helical.

8. The coil spring according to claim 1 wherein the secondary coils are of heavier gauge wire than a wire gauge of the primary coils.

5 9. The coil spring according to claim 1 wherein the primary coils are elliptical and the secondary coils are round.

10. The coil spring according to claim 1 wherein the 10 primary and secondary coils are canted with variable canting.

11. The coil spring according to claim 1 wherein the primary and secondary coils are disposed in an alternating pattern along a centerline.

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12. The coil spring according to claim 1 wherein the primary and secondary coils are joined to form a garter spring.

20 13. The coil spring according to claim 12 wherein the primary and secondary coils are disposed with a concave turn-angle within the garter spring

14. The coil spring according to claim 12 wherein the 25 primary and secondary coils are disposed with a convex turn-angle within the garter spring.

15. The coil spring according to claim 1 wherein the primary coil is radial and the secondary spring is axial.

16. The coil spring according to claim 15 wherein primary and secondary coils are joined to form a garter spring.

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17. The coil spring according to claim 16 wherein the secondary spring is disposed with a concave turn-angle within the garter spring.

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18. The coil spring according to claim 16 wherein the secondary spring is disposed with a convex turn-angle within the garter spring.

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19. The coil spring according to claim 1 wherein at least one of the primary and secondary coils has a D cross-section.

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20. The coil spring according to claim 1 wherein at least one of the primary and secondary coils has a square cross-section.

21. The coil spring according to claim 1 wherein at least one of the primary and secondary coils has a rectangular cross-section.

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22. The coil spring according to claim 1 wherein at least one of the primary and secondary coils has a triangular cross-section.

23. The coil spring according to claim 1 wherein at least one of the primary and secondary coils have a cross-section with flat sides.

5 24. The coil spring according to claim 1 wherein at least one of the primary and secondary coils is V shaped.

10 25. A coil spring comprising:
 a plurality of primary wire coils; and
 a plurality of secondary wire coils, the primary and secondary coils being disposed in an eccentric manner about a spring centerline in order to provide variable force and variable deflection.

15 26. The coil spring according to claim 25 wherein the secondary coils have a smaller diameter than a diameter of the primary coils, and

20 27. The coil spring according to claim 25 wherein the primary and secondary coils are elliptic.

28. The coil spring according to claim 25 wherein the primary coils and secondary coils are round.

25 29. The coil spring according to claim 25 wherein the primary coils are canted and the secondary coils are helical.

30. The coil spring according to claim 25 wherein the secondary coils are of heavier gauge wire than a wire gauge of the primary coils.

5 31. The coil spring according to claim 25 wherein the primary coils are elliptical and the secondary coils are round.

10 32. The coil spring according to claim 25 wherein the primary and secondary coils are canted with variable canting.

33. The coil spring according to claim 25 wherein the primary and secondary coils are disposed in an alternating pattern along a centerline.

15 34. The coil spring according to claim 25 wherein the primary and secondary coils are joined to form a garter spring.

20 35. The coil spring according to claim 34 wherein the primary and secondary coils are disposed with a concave turn-angle within the garter spring.

25 36. The coil spring according to claim 34 wherein the primary and secondary coils are disposed with a convex turn-angle with the garter spring.

37. The coil spring according to claim 25 wherein the primary coil is radial and the secondary spring is axial.

38. The coil spring according to claim 37 wherein the primary and secondary coils are joined to form a garter spring.

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39. The coil spring according to claim 38 wherein the secondary spring is disposed with a concave turn-angle within a garter spring.

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40. The coil spring according to claim 38 wherein the secondary spring is disposed with a convex turn-angle within the garter spring.

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41. The coil spring according to claim 25 wherein at least one of the primary and secondary coils has a D cross-section.

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42. The coil spring according to claim 25 wherein at least one of the primary and secondary coils has a square cross-section.

43. The coil spring according to claim 25 wherein at least one of the primary and secondary coils has a rectangular cross-section.

44. The coil spring according to claim 25 wherein at least one of the primary and secondary coils has a triangular cross-section.

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45. The coil spring according to claim 25 wherein at least one of the primary and secondary coils has a cross-section with flat sides.

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